

Appln No. 09/980,606
Amdt date September 19, 2005
Reply to Office action of May 19, 2005

REMARKS/ARGUMENTS

In the Office action dated May 19, 2005, all of the pending claims were rejected. Claim 4 was rejected under 35 U.S.C. § 112. Claims 1 - 6, 8, 10, 11 and 44 were rejected under 35 U.S.C. § 102. Claims 7, 9 and 44 were rejected under 35 U.S.C. § 103.

By this Amendment, Applicant has amended the amended the Specification, amended claims 1, 5 and 8 - 11, and canceled claims 2 - 4, 6 and 7. Reconsideration and reexamination are hereby requested for claims 1, 5, 8 - 11 and 44 that are pending in this application.

Request for Acknowledgment of Information Disclosure Statement

Applicant submitted an Information Disclosure Statement including cited references to the U.S. Patent Office on September 15, 2003. To date, Applicant has not received an acknowledgement that the Information Disclosure Statement was considered by the Examiner. For the Examiner's convenience, a copy of the transmittal form and the FORM PTO/SB/08A/B for this Information Disclosure Statement is attached to this paper in the Appendix. Applicant requests that an initialed copy of the FORM PTO/SB/08A/B be entered in the application file and returned to Applicant with the next communication from the Office in accordance with MPEP § 609.

Response to the 35 U.S.C. § 112 Rejection of Claim 4

The Examiner rejected claim 4 under 35 U.S.C. § 112, second paragraph, as being incomplete for omitting essential structural

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relationships of elements. Specifically, the Examiner stated that "Claim 1 defines the "reinforcing capillary" as a "groove" or "hole", however, claim 4 further defines the "reinforcing capillary" as a "cylinder" which is geometrically contradictory to claim 1."

Applicant respectfully traverses the rejection. Original claim 1 recited that the "the reinforcing capillary is provided with a hole or groove formed therein," not that the reinforcing capillary is a groove or a hole. Accordingly, Applicant submits that original claims 1 and 4 were not contradictory.

Response to the 35 U.S.C. §§ 102 and 103 Rejection of the Claims

Claims 1 - 6, 8, 10, 11 and 44 were rejected under 35 U.S.C. § 102(b) as being anticipated by Vaerewyck, U.S. Patent No. 4,768,848 (hereafter referred to as "Vaerewyck"). Claim 1 is independent. Claims 2 - 4 and 6 have been canceled. Claims 5, 8, 10, 11 and 44 depend on claim 1.

Claims 7 and 9 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Vaerewyck in view of Isono et al, U.S. Patent No. 5,259,044 (hereafter referred to as "Isono"). Claim 7 has been canceled. Claim 9 depends on claim 1.

Claim 44 was rejected under 35 U.S.C. § 103(a) as being unpatentable over Vaerewyck in view of Isono and further in view of Corsini et al., U.S. Patent No. 5,796,764 (hereafter referred to as "Corsini"). Claim 44 depends on claim 1.

Independent claim 1 is not anticipated by or obvious in view of Vaerewyck or any of the other the cited references because the references, considered either separately or in

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combination, do not teach or suggest all of the limitations of claim 1.

Claim 1 relates to an optical waveguide modulator equipped with an output light monitor including a combination of the following features:

Feature (1): The reinforcing capillary is formed from a transparent glass, and provided with a hole formed therein for containing and holding the optical fiber for output light, a connection surface thereof connected to an output end side surface of the dielectric substrate of the optical waveguide element, and a terminal surface thereof opposite to the connection surface.

Feature (2): The terminal surface of the reinforcing capillary is a light-reflective surface.

Feature (3): The hole of the reinforcing capillary for holding the optical fiber for the output light is formed along the longitudinal axis of the transparent glass capillary, and the longitudinal axis of the hole intersects the light-reflective terminal surface at an oblique angle.

Feature (4): The monitoring light-receiving means is located in a position in which the monitoring light outputted from the reinforcing capillary to the outside of the capillary can be received, and is provided with a photoelectric conversion element.

In view of the above combination of features (1) to (4) with each other, transparent reinforcing capillary may:

(i) receive the radiation mode light generated in the optical waveguide-connecting portion of the optical

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waveguide element and passed through the dielectric substrate, as monitoring light,

(ii) transmit the received monitoring light to the terminal light-reflective surface therethrough, and

(iii) reflect the monitoring light on the terminal light reflective surface to output the reflected monitoring light toward the monitoring light-receiving means.

Accordingly, the optical waveguide modulator equipped with an output light monitor of claim 1 may provide, in a relatively simple constitution, an apparatus that enables monitoring light to be transmitted to a means for receiving and detecting the monitoring light to monitor the intensity of the outputted monitoring light, and the intensity of the main output light to be controlled in response to the detecting results of the monitoring light.

Vaerewyck discloses a fiber optic repeater 10 comprising (a) a substrate 12 having first and second longitudinally opposite edge portions (at shelf portions 28); (b) an optical waveguide 14 formed in the surface of the substrate and extending between edge portions of the substrate, the waveguide including first and second longitudinally opposite end portions 18 and a pair of laterally space-apart central portions 16 jointed to the first and second end portions, the central portions defining therebetween an interior surface portion of the substrate, the waveguide propagating optical signals between terminal faces 29 of the waveguide exposed respectively at the first and second edge portions of the substrate; (c) a data branch 52 having a connecting portion 54 extending from the

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first end portion 18 of the waveguide and an output end 56 opposite the connecting portion, the data branch transmitting, to the output end, a portion of the optical signals propagated from the first end portion to the second end portion of the waveguide; and (d) a photodetector means 58 communicating with the output end of the data branch for converting the portion of the optical signals transmitted by the data branch into electrical signals.

In the disclosure of Vaerewyck, there is no teaching or suggestion of utilizing radiation mode light generated in an optical waveguide-connecting portion of an optical waveguide element, as monitoring light, to monitor the intensity of output light from the modulator.

Also, Vaerewyck does not teach or suggest a reinforcing capillary for reinforcing a connection between an optical waveguide element and an output light-outputting optical fiber, and transmitting the monitoring light from the substrate to the monitoring light-receiving means therethrough.

Accordingly, the optical waveguide element of Vaerewyck includes no transparent reinforcing capillary having features (1), (2) and (3) and no monitoring light-receiving means satisfying feature (4) in relation to the light-reflective surface (feature (2)) of the transparent reinforcing capillary. Moreover, Vaerewyck does not teach or suggest the combination of features (1) to (4) with each other or the recited interaction of the combination.

Isono discloses an optical modulator having an output light monitoring function. In the optical modulator, the wave

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substrate has an output side end face formed at an oblique angle to the output side optional waveguide. Thus a portion of the output light of the optical wave-guide 16 is reflected at the output end face and is transmitted, as monitoring light, through a monitoring light-waveguide 54, and is converted to an electrical signal by the PD 56.

Isono does not teach or suggest utilizing radiation mode light generated in an optical waveguide-connecting portion of an optical waveguide element, as monitoring light, to monitor the intensity of output light from the modulator.

Also, the modulator of Isono has no transparent reinforcing capillary connected to an output end face of the substrate and having a hole for containing and holding an optical fiber connected to the output end of the optical waveguide. Thus, Isono does not teach or suggest utilizing the transparent reinforcing capillary to receive the radiation mode light generated in the optical waveguide element, as monitoring light, through the substrate of the waveguide element, to transmit the received monitoring agent to the monitoring light-receiving means using a light-reflecting surface of the capillary.

Accordingly, the optical waveguide modulator of Isono does not teach or suggest a transparent reinforcing capillary having features (1), (2) and (3) or a monitoring light-receiving means satisfying feature (4). Moreover, Isono does not teach or suggest the combination of features (1) to (4) with each other or the recited interaction of the combination.

Corsini discloses lasers using distributed Bragg reflectors. Corsini does not teach or suggest the features (1),

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(2), (3) and (4) of claim 1 or the combination of those features with each other.

In view of the above, Applicant submits that claim 1 is not anticipated by or obvious in view of the cited references. Claims 5, 8 - 11 and 44 that depend on claim 1 also are patentable over the cited references for the reasons set forth above. In addition, these dependent claims are patentable over the cited references for the additional limitations that these claims contain.

For example, claim 5 recites, in part: "the radiation mode light . . . is transmitted toward a periphery of the capillary and then is outputted, as a monitoring light through the periphery of the capillary, the outputted monitoring light is converged by a lens effect of the periphery of the cylindrical reinforcing capillary, and the converged monitoring light is received by the monitoring light-receiving means." The lenses 47 and 48 of Isono are not a cylindrical reinforcing capillary as set forth in claim 1. Moreover, there is no teaching or suggestion to provide a cylindrical reinforcing capillary with the specified characteristics to provide monitoring light to a monitoring light-receiving means.

Claim 9 recites, in part: "the terminal surface of the reinforcing capillary is formed into a curved surface projecting outward to thereby enable the monitoring light transmitted through the reinforcing capillary to be reflected and converged on the curved terminal surface, and then to be received by the monitoring light-receiving means." The fiber referred to in paragraph 15 of the Office action is not a reinforcing capillary

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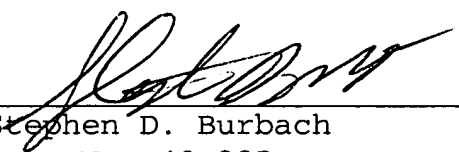
as set forth in claim 1. Moreover, there is no teaching or suggestion to enable monitoring light to be reflected and converged at a terminal surface to provide the light to a monitoring light-receiving means.

Regarding claims 10 and 11, the cited references do not teach or suggest the use of a stain-preventing groove as claimed.

CONCLUSION

In view of the above amendments and remarks Applicant submits that the claims are patentably distinct over the cited references and that all the objections/rejections to the claims have been overcome. Reconsideration and reexamination of the above application is requested.

Respectfully submitted,
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APPENDIX



PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

EXPRESS MAIL NO.: EV326709285SU

Applicant : Manabu Yamada, et al.
Application No. : 09/980,606
Filed : November 15, 2001
Title : OPTICAL WAVEGUIDE MODULATOR EQUIPPED WITH AN OUTPUT
LIGHT MONITOR
Grp./Div. : N/A
Examiner : N/A
Docket No. : 45923/DBP/A400

SUPPLEMENTAL INFORMATION DISCLOSURE STATEMENT
37 CFR § 1.97(b)

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Post Office Box 7068
Pasadena, CA 91109-7068
September 15, 2003

Commissioner:

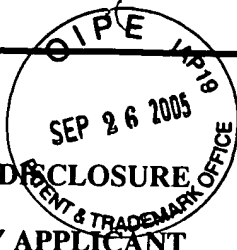
In compliance with the duty of disclosure under 37 CFR §§ 1.56, 1.97 and 1.98, and in accordance with the provisions in the Manual of Patent Examining Procedure §§ 609 and 707.05(b), enclosed is FORM PTO/SB/08A/B listing the references that are known to applicant. Copies of each of the listed references are enclosed. This filing is timely because it is made during one of the periods described in 37 CFR § 1.97(b). To the best of the undersigned's knowledge, this filing is being made prior to the mailing date of a first Office Action on the merits.

It is respectfully requested that the listed references be considered in the examination of this application and identified on the list of references cited on the patent issuing for this application. Applicant also requests that an initialed copy of FORM PTO/SB/08A/B be entered in the application file and returned to applicant with the next communication from the Office in accordance with MPEP § 609.

Respectfully submitted,
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DBP/aam
Enclosures: PTO/SB/08A/B, w/references



**INFORMATION DISCLOSURE
STATEMENT BY APPLICANT**

(use as many sheets as necessary)

Attorney Docket Number	45923/DBP/A400
Application Number	09/980,606
Filing Date	November 15, 2001
Applicant(s)	Manabu Yamada, et al.
Group Art Unit	N/A
Examiner Name	N/A

U.S. PATENT DOCUMENTS

EXAMINER INITIALS	Cite No. ¹	DOCUMENT NUMBER Number - Kind Code ² (If Known)	PUBLICATION DATE MM-DD-YYYY	NAME OF PATENTEE
		4,340,272	07-20-1982	Papuchon, et al.
		5,764,400	06-09-1998	Itou, et al.

FOREIGN PATENT DOCUMENTS

EXAMINER INITIALS	Cite No. ¹	Foreign Patent Document Country Code ³ - Number ⁴ - Kind Code ⁵ (If Known)	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	T ⁶ (✓)
		JP 60-63822	05-04-1985	Yokokawa Hokushin Electric Corp	Partial Translation

OTHER DOCUMENTS

EXAMINER INITIALS	Cite No. ¹	Include name of the author (in CAPITAL LETTERS), title of the article, title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published.
		EPO Search Report of Corresponding EP 01 91 2411.4, dated 06-06-2003
		MEKADA, ET AL., "Practical method of waveguide-to-fiber connection: direct preparation of waveguide endface by cutting machine and reinforcement using ruby beads" APPLIED OPTICS, OPTICAL SOCIETY OF AMERICA, vol. 29, no. 34, pages 5096-5102, Washington, US 12-01-1990, XP000165712

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EXAMINER SIGNATURE	DATE CONSIDERED
EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609; Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant. ¹ Applicant's unique citation designation number (optional). ² See Kinds Codes of USPTO Patent Documents at www.pto.gov or MPEP 901.4. ³ Enter Office that issued the document, by the two-letter code (WIPO standard ST.3). ⁴ For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. ⁵ Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST.16 if possible. ⁶ Applicant is to place a check mark here if English Language Translation is attached.	

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